

## CLAIMS

- (1) A method for forming a porous insulating layer, comprising:
- the solution-applying step of applying a solution in which an insulating material is dissolved, onto a workpiece;
- 5 the solidified layer-forming step of forming a solidified layer by cooling the solution applied onto the workpiece to a temperature less than or equal to the melting point of a solvent contained in the solution;
- the drying step of removing the solvent contained in the solidified layer to make the solidified layer porous; and
- 10 the firing step of hardening the porous layer obtained by the drying step.
- (2) The method for forming a porous insulating layer according to Claim 1, wherein, in the solution-applying step, the solution is applied so as to cover unevenness of the surface of the workpiece to flatten the surface of the applied layer.
- 15 (3) The method for forming a porous insulating layer according to Claim 1, wherein the drying step is performed under a reduced pressure.
- (4) The method for forming a porous insulating layer according to Claim 2, wherein the drying step is performed under a reduced pressure.
- (5) The method for forming a porous insulating layer according to Claim 1,
- 20 wherein the solidified layer-forming step is performed after part of the solvent is removed from the solution applied onto the workpiece.
- (6) The method for forming a porous insulating layer according to Claim 1, wherein the firing step is followed by airtight treatment for eliminating the air permeability of the hardened porous solidified layer.
- 25 (7) The method for forming a porous insulating layer according to Claim 1,

wherein the solidified layer-forming step is performed by rapidly cooling the solution.

(8) The method for forming a porous insulating layer according to Claim 1, wherein the application of the solution to the workpiece is performed by silt  
5 coating.

(9) A porous insulating layer-forming apparatus comprising:  
a solution-applying portion for applying a solution in which an insulating material is dissolved, onto a workpiece;  
a solidified layer-forming portion for cooling the solution applied onto the  
10 workpiece to a temperature less than or equal to the melting point of the solvent contained in the solution to form a solidified layer;  
a vacuum drying portion for removing the solvent contained in the solidified layer by decompression to make the solidified layer porous; and  
a firing portion for hardening the porous layer obtained in the vacuum  
15 drying portion.

(10) A porous insulating layer-forming apparatus according to Claim 9, wherein the solidified layer-forming portion is provided in a decompression chamber of the vacuum drying portion.

(11) An electronic device including a porous insulting layer formed by the  
20 method for forming a porous insulating layer according to Claim 1.

(12) An electronic device including a porous insulating layer formed by use of the porous insulating layer-forming apparatus according to Claim 9.